FAA GENERAL AVIATION NEWS

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Flight from Bountiful

A little girl's Christmas miracle at Stampede Pass

History of the flight

On December 24, about 0815 m.s.t., private pilot John R. Anders with passengers Mrs. John R. Anders and Ingrid Anders, 11, departed Bountiful Airport, Utah, in a Grumman American *Tiger* en route to Renton, Washington. Pilot Anders obtained a telephone briefing from the Salt Lake FSS at 2003 m.s.t. on December 23, and on December 24 at 0600. At 0815 he activated a VFR flight plan indicating his intention to proceed via Pocatello, Burley, Boise, and Ellensburg. His estimated arrival time at Renton was 1500 p.s.t., allowing for stops on the ground of 40 minutes at Pocatello and 1.5 hours at Boise.

The flight proceeded without known incident as far as Ellensburg, where an unscheduled landing was made at 1430 p.s.t. following the broadcast of an AIRMET indicating lowering ceilings over the entire Cascade range east of Seattle. At 1446 Pilot Anders telephoned Seattle for en route weather. At 1520 he telephoned again, received a weather briefing, and extended his flight plan. At 1602 he telephoned again and asked for weather over Stampede Pass. At 1615 he reactivated his flight plan to Renton via Stampede Pass, giving his ETA as 1700.

At 1633 Pilot Anders reported he was entering the pass and asked for a weather update. He stated that ground reference was obscured by light snow, and that he was "just under the clouds at 4,500 feet" and experiencing turbulence.

At 1636 he transmitted, "Are you sure of that ceiling?" This was followed by "We're getting all shaken up here . . ." The sound of a woman's or girl's voice crying was heard in the background. Then the transmission: "OK, I think we've cleared the ridge all—" The contact was broken off at this point and not resumed.

A search effort was initiated at 1800 p.s.t., but no aircraft were launched during the night because of continuing low ceilings and precipitation. At 0110 on December 25 the Sheriff's office reported an aircraft down in the hills just north of Stampede Pass, with one known survivor. Snowmobile units were dispatched to the crash site. First reports indicated that two other occupants of the aircraft had perished of injuries and exposure, but later reports stated they had been extricated from the plane alive and taken to the county hospital.

Examination of the wreckage

The on-scene investigation was begun at 1400 p.s.t. on December 25, following arrival of the investigation team by helicopter. The aircraft was covered with four to five inches of snow, and was located only by markers left by the rescue team. Ground disturbance on impact was only partially discernible because of the snow cover.

The aircraft impacted the mountain approximately five miles north of Stampede Pass, at an elevation of about 4,000 feet. From the position of the wreckage and the damage to the propeller, engine and forward cabin, it appeared that the aircraft was in more or less level flight, under power, at the time of impact. Snow cover consisted of 18 inches of crusted snow, with approximately 8 inches of new powdery snow on top. The snow had evidently cushioned the impact and allowed the aircraft to skid forward along the slope for about 25 feet after the landing gear collapsed.

The electrical switches were in the "On" position, but there was no fire. An ELT was found on board, armed but badly damaged and not functioning at the time of arrival. Seat-belt fastenings were

intact, but damage to the panel and other evidence indicated the two occupants of the front seats had sustained severe head injuries.

Crew information

Pilot Anders held an airplane single-engine land certificate. His log showed 180 total hours, including eight hours of instrument training—no instrument rating. He had 17.4 hours in the 172, and had received a biennial flight review on September 20. He held a Class III medical certificate, requiring the use of corrective lenses.

The aircraft

The *Tiger* was registered to Eagle Flying Club of Salt Lake. Examination of the service logs indicated compliance with all pertinent Airworthiness Directives. The last annual inspection was performed on November 1.

The terrain

Stampede Pass (3,800′) is the highpoint of one of the recommended VFR routes to Seattle from the Yakima-Ellensburg area. It is located ten miles west of Easton, Washington, at a point where a small road leaves the Yakima River valley and branches off toward the southwest. There are mountain peaks in excess of 5,000′ on either side of the Pass. A U.S. weather station is located in the pass, and weather information from the pass is transmitted by teletype to the Seattle FSS. Stampede Pass is noted for very abrupt changes in weather. Most of this terrain is heavily wooded and is usually covered with snow in midwinter.

Meteorological information

Stampede Pass (Elev. 3,800) weather station. The aviation area forecast, valid 0400 to 2300, called for movement of a cold front from the Washington coast toward Montana with clouds at 4,500 feet broken and 6,000 feet overcast with light snow. At 1555 Stampede Pass reported 1,500 indefinite, obscured visibility 3 miles, moderate snow, fog. Temperature 30, dew point 30, wind 230 degrees at 20 knots, altimeter 29.52, pressure dropping. Moderate snows occasionally light.

AIRMET Charlie 3 and SIGMET Delta 2 were current during this period. Both were flight precautions for moderate to severe turbulence.

1638, Special. Sky partially obscured, estimated 500 feet overcast, visibility 3 miles in light snow, fog, wind 215 degrees at 16 knots, gusts to 25.

Statement—Mr. Anders

At the time of investigation the pilot, Anders, was still in serious, although stable condition, and the interview was restricted to a few brief questions. Anders had suffered a severe concussion as well as a broken nose and mild to fairly severe frostbite. He said that his memory of the events leading up to the accident was clear.

The pilot stated that he was at the "wrong altitude" when he approached Stampede Pass, and he blamed this on his failure to re-set his altimeter according to the setting given in the weather report from Stampede Pass Weather Station. He stated that at the time he received the report he was busy looking for the turn-off into the pass, which was difficult because of what he described as "intermittent light snowfall." He felt certain the weather was within VFR minimums, "although marginal at times." Asked what are VFR minimums in this area, he replied, "Three miles visibility and 1,000′ ceiling."

The pilot Anders stated that he had set his altimeter on departure from Ellensburg (elevation 1,700) at 30.01. He said the weather was "not bad at all" when he left Ellensburg, but that he encountered progressively lower ceilings and occasional snow as he flew up the Yakima Valley.

He believed that the altimeter setting given him for Stampede Pass was 29.61, but at the time he received it local turbulence made it difficult for him to control the aircraft, stay on course and adjust the altimeter. He also stated that the light was poor. He said that he was wearing his corrective eye glasses. He said that he felt the most important thing at the time was to make certain he entered the pass on course, and that he intended to re-set his altimeter when the turbulence lessened. It was Anders' belief that he did fly directly into the pass, but too low. He said that he had been calculating the error as he lay in his bed, and he believed that it was on the order of 400 to 500 feet. He felt that he could have remained below the clouds and still avoided colliding with the surface if he had been aware of his actual or true altitude.

Asked whether he was aware that the pass was notorious for very sudden weather changes, and that the ceiling had been known to drop from 1,000′ to near ground level in a matter of minutes, Anders stated he supposed this to be true but felt certain this had not led to his accident. He insisted that the weather remained VFR, repeating the phrase "marginally VFR, but still VFR."

Asked if he was familiar with the effect of a "white out" on inflight vision and navigation, the pilot said he had read of it, but never experienced it before. He believed the snow cover led him to assume he was at a safe altitude ". . . at least 500′ above the ground" when he attempted to fly over the pass. He was not aware that his aircraft had been located five miles north of the pass, and found this difficult to understand.

Asked whether he felt he had allowed for a safe margin of error, considering the weather conditions and the overall length of his all day flight from Bountiful, the pilot stated that ". . . it was his business to eliminate errors," and that he "never took chances." He stated that the altimeter should be designed in such a way as to make it possible to re-set it quickly and easily, in any kind of weather. He acknowledged that he experienced "some weariness and strain," as a result of flying all day and coping with the weather and other flight conditions (he said his wife had become apprehensive at one point), but insisted that this had not affected his judgment or his ability to fly the airplane.

Lowering ceilings and rising ground can be more than a match for a light plane attempting to negotiate a mountain pass at dusk. Marginal weather minimums may not be enough.

Statement—Mrs. Anders

Mrs. Anders was not questioned during this investigation, on advice of her physician. She was not a certificated pilot, and did not participate in any of the radio transmissions. She suffered a mild concussion as a result of her head striking the panel and some facial lacerations. There was also non-permanent damage from exposure to cold.

Statement—Ingrid Anders

Ingrid Anders, aged 11, was also hospitalized, although she had only superficial injuries. She had suffered some degree of shock following the accident and at first was unable to say anything about it. On a later visit she appeared to be fully recovered and remembered many details of the flight.

She said that they had planned to fly to her grandmother's house for Christmas because Christmas Eve was also her birthday and they wanted to celebrate them together. The idea of flying all the way to Washington in their own airplane (actually a club airplane) made her feel very important. She said she was not at all afraid because her father was "a very careful man who did everything right." He is an accountant by profession.

She said that for weeks before the flight their living room floor had been covered with all kinds of charts. Her father had shown them the route they would follow, along river valleys to avoid the high mountains. He also showed them small airports all along the route which would make it safe for them if anything went wrong with the airplane. She said her father had been flying "for about two years," and that he had belonged to the flying club about that long.

Ingrid Anders stated that her father had been busy the night before the flight, telephoning for a weather forecast and weighing all the baggage they planned to take—including her dolls. She said her father was annoyed because they were a little late getting to the airport, but once they got started everything was just fine.

The girl said that there was no problem with the airplane at any time. She said she had a little breakfast at the first stop (Pocatello) while her father talked to someone about the weather, and that they all had lunch at Boise, after her father had their airplane refueled. She said she went to sleep on the backseat of the airplane after they left Boise.

Ingrid said the sky had been clear all the way until after she woke up from her nap. She saw a layer of clouds ahead, and she heard some talk on the radio about the weather. Then she heard her father talking to her mother about it, telling her not to be concerned, that they would land at Ellensburg and get more information. By that time the air was getting a little bumpy, and the girl thought she might be getting airsick. But she felt all right after they landed.

The girl did not remember exactly how long they stayed on the ground at Ellensburg. She remembered talking on the telephone to her grandparents, and her mother saying that they were only 90 miles away but there was some problem with the weather and they might have to stay put overnight. Ingrid was very upset about that. But then her father said he was going to study his charts and see if there was some way they could make it before nightfall. Later he talked to her mother about a place called Stampede Pass, and he was very excited. He went away to make some more phone calls while she and her mother had a sandwich in the little airport cafe. Then he came and told them that if they got back on the airplane they could make it to grandmother's house in time for Christmas.

Ingrid remembered how bumpy the air was as soon as they were on their way, and how the clouds got lower and lower and she saw a lot of snow on the ground and some in the air. Her mother told her to keep an eye out for Santa Claus, but she could tell her mother was worried because she put her arms around her. She wanted to ask her father how much further it was, but he seemed very busy and was talking on the radio.

She was standing with her arms around her mother when she heard her father say, "OK, we're all right." Then she felt "a terri-

Snow and fog eradicate contours of the mountain slopes, resulting in "whiteout" and disorientation

ble bump" and she thought the airplane had "exploded." She remembered hearing her mother scream.

The girl said that when she "woke up" she was outside the aircraft in the snow. (The hospital doctor said she had suffered no injury that would render her unconscious, but that she may have passed out from fright or shock.) Ingrid did not remember whether she crawled out of the wreckage or whether she had been thrown clear. She only remembered that she was very cold, and that her parents were still in the aircraft, and that they did not answer when she spoke to them. There was blood "all over" and it frightened her.

After awhile she started walking down the slope. She said she remembered seeing some Christmas lights from the airplane before the crash. It was snowing lightly but once in a while she could see the moon between the clouds. Her shoes got full of snow, so she sat down under a tree and waited, until the man with the beard came up and took her in his sled.

Statement—the witness

The only witness at the scene was Arnold Johnson, a school teacher from Easton, who was spending Christmas at a ski hut near Stampede Pass with his wife. He was outdoors unloading firewood from a sled in the late afternoon when he heard what he believed was a small aircraft. His statement follows:

I didn't actually see it go over, but I heard it, flying low down in the clouds. And I didn't hear any crash. I just suddenly realized the sound had stopped. I told my wife about it at supper, and we talked about it, and finally I hooked up the tractor to the sled and went up the hill to have a look.

It was still snowing and I couldn't see much, even with the tractor lights. I went as far as the nearest ridge, and then I decided to go back. I got out of the tractor to make sure I could turn around all right and I saw this little girl, still as a statue, sitting in the snow with her eyes closed. I wasn't even sure she was alive. I touched her, and she opened her eyes and said, "I've been waiting for you. I heard the sleigh bells."

That's all she would say. I put her in the sled on some straw, covered her with a blanket and got her back to the cabin. I left her with my wife to look after her and went back up to the ridge. I back tracked the girl's foot prints in the snow till I came to the airplane. I didn't see it until I practically drove into it, because of all the snow. I could see there were two people still inside either dead or unconscious. I used the radio in my tractor to call the Sheriff. I didn't try to get the people out. I got inside the cabin with a blanket, and tried to get them warm. That's all I could do, till the medics came with the snowmobile. They asked me how the people were and I said, "They're breathing, that's all I know."

They said "That's good, we'll take it from here." And they did.

(Editor's note: Accidents described in this magazine are based on reports filed by the National Transportation Safety Board. Some details are altered, in order to protect the privacy of persons involved.)

The Engine Doctor

How Sharp Is Your Tach?

Mechanic dials in numbers on test instrument as he prepares to take reading from spinning prop, for comparison with airplane tachometer.

Q. Doctor, do you believe that some airplanes fly *faster* as they get older? Can an engine get more efficient with wear?

A. Not hardly. As a rule when an airplane—or anything else mechanical—comes off the assembly line it is as near perfect as it is ever going to get. Normally you'd expect a flying machine to slow down a little as parts begin to wear and things get out of trim—not speed up. Where did you get that theory?

Q. Well, there's this guy out at my airport with a *Skylane*, just like mine with the same kind of engine—only his is five years old and mine is only about a year old. And his flies about ten or twelve miles an hour faster than mine. He claims his plane is faster because it gets more weather-worn or streamlined with use. Doctor, what is your scientific reaction to that idea?

A. Bull!

Q. I beg your pardon?

A. I think the gentleman is pulling your leg.

Q. Then how do you explain the fact that whenever we go to the same fly-in, and leave at the same time, he invariably beats me to the airport?

A. There are many possible explanations. He could use a higher power setting, for example. You don't think so? Well, he may be a crafty old bird who knows how to use the winds at altitude better than you do. Or, he may be able to fine-tune the mixture better than you; perhaps he has an exhaust gas temperature probe.

Q. He doesn't. I know because I rode in the cockpit with him last time out—my husband flew my plane, and we had a little bet on it. Same power settings, same cruise altitude, same fuel load—only this five year old *Skylane* got there first. He was getting a higher airspeed reading all the way. How do you explain that?

A. Your aircraft may be below par. When did you last have the engine looked at?

Q. I've got less than 20 hours on the tachometer since the annual. Compression, mags—everything checked out right on the button. How could I have lost that bet?

A. You know, it may not be the engine. Your aircraft could be slightly out of trim. That would do it.

Q. Not a chance. I had it checked over from stem to stern. It has to be the engine, but how?

A. When you flew with this other pilot, did you observe anything he did that was out of the ordinary?

Q. Only that he chewed tobacco. One thing—and that was odd. He got off the ground with less power than the book calls for. Does that make any sense to you?

A. Aha. It's beginning to. You mentioned the tachometer a moment ago. I suggest that your friend have his instrument checked.

Q. His tachometer? I'm the one that has the slow airplane!

A. But *he* may be the one with the problem. I suspect his tachometer is reading low. In that case when he sets in a normal power setting he's actually turning over more rpm than normal—and using more power. That would account for his airplane going faster than yours at the same apparent setting. And if his tach is running increasingly slow, it would also account for his airplane getting "faster" all the time.

Q. So when he thinks he's pulling 75 percent of power he may actually be using

80 or even more?

A. Correct. On the other hand, it might also be that your tachometer reads on the high side. Has it ever been checked?

Q. Not that I know of. Would they do that on an annual?

A. Not necessarily, although I happen to be a firm believer in regular tach checks—especially as they get older. The instrument does not, as some people imagine, simply give you the revolutions of the shaft against a time frame. On many light aircraft a flyweight assembly is driven by the shaft. As RPM increases—the weights are thrown farther apart by centrifugal force. The faster the RPM the further apart the weights. This distance is transmitted by means of small gears and levers to the indicating hand on the instrument. Another type is a drum rotating in another drum with a small air space between. The driven drum drags the free drum by air friction or magnetic drag. Mechanical wear does take place and eventually produces inaccurate readings. Usually tachometers tend to slow down, or fall behind the propeller, as they get older. This is what I suspect has happened to your friend's aircraft.

Q. Is that why he wasn't showing full power on takeoff?

A. Probably. The danger is that he could be exceeding the rpm redline at times without knowing it.

Q. Is that really bad news?

A. Very bad. On many aircraft even a momentary overspeed of ten percent or greater puts such a strain on the propeller that you are required to have the blades removed and inspected. A five percent overspeed, if continued for an hour, is considered to be equally damaging. This is covered for one propeller by Airworthiness Directive 77-12-06, in case you are interested. We suspect that quite a few blade failures are due to pilots unknowingly operating at excessive rpms, or in a restricted range.

Q. What do you mean by a "restricted range"?

A. Some engines will produce excessive stress on the propeller in a certain range of low rpm (indicated by a red arc on the tach). For example, on one typical engine, if operated between 2,000 and 2,200 rpm, the vibratory stresses at the prop tip may reach 7,000 psi (lbs. per sq. in.). The allowable tip stress for these propellers is 4,700 psi.

Q. How could you tell if you had gone over the stress limit?

A. We have no positive means of assessing fatigue damage to propellers that have been overstressed because of faulty tachometers.

Q. I'm worried already. Do I have to take the airplane to a propeller shop to have the tachometer reading checked?

A. No, it can be bench-tested in a shop qualified to do instrument work. As a matter of fact it can even be checked right in the airplane by anyone who has a simple, handheld stroboscope instrument that has come out lately. It's only about the size of a pocket radio. Many repair shops have them now, or you could buy one for yourself.

Q. How does it work?

A. Something like a movie projector. It has a rotating disk with holes at the edge. With your prop running at a known rpm speed, you sight through the instrument and adjust a dial until the propeller appears to stand still. The reading on the dial will tell you the exact rmp speed of the propeller, and you compare that with your panel tachometer reading. You would check both low and high range, of course. If you find there is a significant error, you should have your tach replaced.

Q. Doesn't it hurt the engine to run it up that high on the ground?

A. Not for such a short time—it only takes a minute. But the beauty of this testing device is you can use it in the airplane inflight, if you wish. It is powered by electric current, either 110 volt, or dc from a cigarette lighter in the panel. You sit in the front seat and look through the windshield at the prop. How is that for minimum down time?

Q. Not bad. But listen, Doc, how much tach error would you consider allowable?

A. I personally would feel uncomfortable if my tach had an error of 50 rpm or greater. Anything less than that I could tolerate until the next annual, but I'd be careful about operating near the redline or arc.

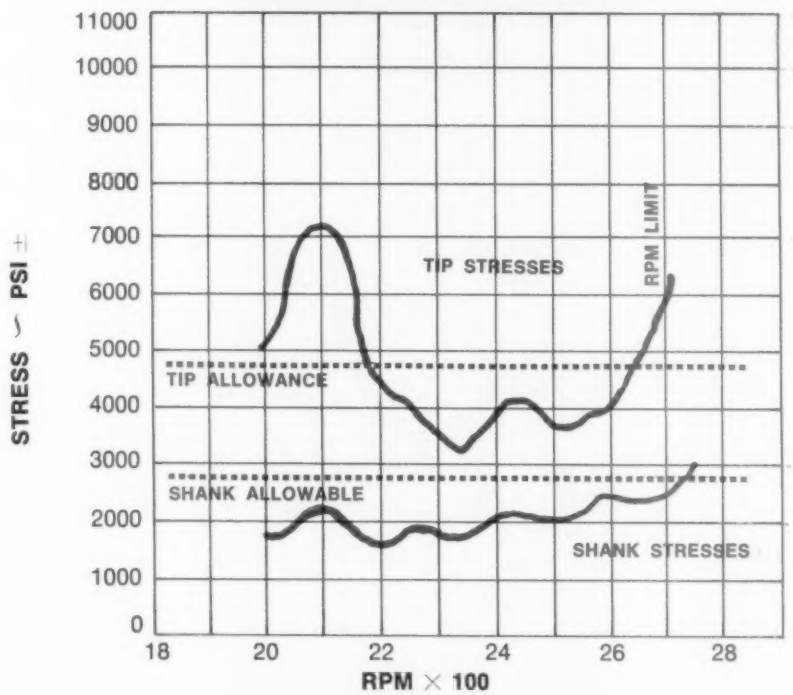
Q. Is it worthwhile repairing a tachometer?

A. Possibly, but more often than not it makes better sense to have a new one, or an exchange, installed. Your tachometer, incidentally, is one of the least expensive instruments you have in your airplane—a fraction of the cost of a new propeller or an engine. Just remember—it's not immortal.

Q. Are any of us?

A. Not my field. Next please.

BULLETIN No. 108B
RPM LIMITATIONS FOR LYCOMING 0-360 ENGINES (WITH HC-C2YK-1/7666-2 PROPELLER ASSEMBLY) AT FULL THROTTLE-LEVEL FLIGHT



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76–7 *Accident Experience of Civilian Pilots with Static Physical Defects.* ADA 029–431. Price—$3.50.

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* The regulations for the transportation of hazardous material by air is set forth in Part 175—Carriage by Aircraft, effective July 1, 1976, published in 41 F.R. 16106, 4/15/76. This Part is issued by the Materials Transportation Bureau, Department of Transportation. For information concerning hazardous material regulations, contact the Materials Transportation Bureau, Department of Transportation, Washington, D.C. 20590.

SUBSCRIPTIONS

Part	Title	Catalog Number	Price Domestic	Price Foreign Handling	Changes Issued
1	Definitions and Abbreviations	TD 4.6:1	$ 3.00	.75	5
21	Certification Procedures for Products and Parts	TD 4.6:21	3.75	.95	8
23	Airworthiness Standards: Normal, Utility, and Acrobatic Category Airplanes	TD 4.6:23	3.55	.90	7
25	Airworthiness Standards: Transport Category Airplanes	TD 4.6:25	6.60	1.65	6
33	Airworthiness Standards: Aircraft Engines	TD 4.6:33	3.00	.75	3
36	Noise Standards: Aircraft Type and Airworthiness Certification	TD 4.6:36	3.00	.75	7
37	Technical Standard Order Authorizations	TD 4.6:37	5.65	1.45	6
63	Certification: Flight Crewmembers Other Than Pilots	TD 4.6:63	3.00	.75	2
91	General Operating and Flight Rules	TD 4.6:91	11.30	2.85	22
93	Special Air Traffic Rules and Airport Traffic Patterns	TD 4.6:93	2.45	.65	6
*103	Part Revoked as of 7/1/76				
121	Certification and Operations: Domestic, Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft	TD 4.6:121	19.00	4.75	25
123	Certification and Operations: Air Travel Clubs Using Large Airplanes	TD 4.6:123	2.00	.50	4
139	Certification and Operations: Land Airports Serving CAB-Certificated Scheduled Air Carriers Operating Large Aircraft (Other Than Helicopters)	TD 4.6:139	3.00	.75	4

SINGLE SALE

Part	Title	Stock Number	Price[1]
11	General Rule-Making Procedures	SN 050–007–00236–0	$1.30
13	Enforcement Procedures	SN 050–007–00230–1	.70
27	Airworthiness Standards: Normal Category Rotorcraft	SN 050–007–00244–1	2.10
29	Airworthiness Standards: Transport Category Rotorcraft	SN 050–007–00245–9	1.70
31	Airworthiness Standards: Manned Free Balloons	SN 050–007–00246–7	.40
35	Airworthiness Standards: Propellers	SN 050–007–00247–5	.35
39	Airworthiness Directives[2]	SN 050–007–00229–7	.35
43	Maintenance, Preventive Maintenance, Rebuilding and Alteration	SN 050–007–00311–1	1.80
45	Identification and Registration Marking	SN 050–007–00231–9	.65
47	Aircraft Registration	SN 050–007–00312–9	.85

Change	Stock Number	Price
11–1	SN 050–007–00286–6	.45
2	SN 050–007–00325–1	.40
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4	SN 050–007–00390–1	.80
13–1	SN 050–007–00334–0	.40
2	SN 050–007–00357–9	.40
27–1	SN 050–007–00255–6	.75
2	SN 050–007–00309–9	.35
3	SN 050–007–00362–5	1.30
4	SN 050–007–00370–6	1.40
5	SN 050–007–00393–5	1.40
29–1	SN 050–007–00256–4	.70
2	SN 050–007–00310–2	.35
3	SN 050–007–00351–0	.40
4	SN 050–007–00367–6	1.45
5	SN 050–007–00371–4	1.60
6	SN 050–007–00394–3	1.40
31–1	SN 050–007–00361–7	.65
35–1	SN 050–007–00363–3	.65
2	SN 050–007–00369–2	1.10
45–1	SN 050–007–00395–1	.80
47–1	SN 050–007–00335–8	.40

Part	Title	Stock Number	Price[1]
49	Recording of Aircraft Titles and Security Documents	SN 050–007–00232–7	.50
61	Certification: Pilots and Flight Instructors	SN 050–007–00313–7	2.90
65	Certification: Airmen Other Than Flight Crewmembers	SN 050–007–00314–5	1.25
67	Medical Standards and Certification	SN 050–007–00248–3	.50
71	Designation of Federal Airways, Area Low Routes, Controlled Airspace, and Reporting Points[3]	SN 050–007–00273–4	.85
73	Special Use Airspace[3]	SN 050–007–00274–2	.40
75	Establishment of Jet Routes and Area High Routes[3]	SN 050–007–00275–1	.40
77	Objects Affecting Navigable Airspace	SN 050–007–00276–9	1.10
95	IFR Altitudes[3]	SN 050–007–00277–7	.50
97	Standard Instrument Approach Procedures[4]	SN 050–007–00278–5	.45
99	Security Control of Air Traffic	SN 050–007–00224–6	.70
101	Moored Balloons, Kites, Unmanned Rockets, and Unmanned Free Balloons	SN 050–007–00223–8	.65
105	Parachute Jumping	SN 050–007–00315–3	.55
107	Airport Security	SN 050–007–00225–4	.40
127	Certification and Operations of Scheduled Air Carriers with Helicopters	SN 050–007–00316–1	1.80
129	Operations of Foreign Air Carriers	SN 050–007–00228–9	.45
133	Rotorcraft External-Load Operations	SN 050–007–00318–8	.55
135	Air Taxi Operations and Commercial Operators of Small Aircraft	SN 050–007–00319–6	2.50
137	Agricultural Aircraft Operations	SN 050–007–00258–1	.50
141	Pilot Schools	SN 050–007–00322–6	1.15
143	Ground Instructors	SN 050–007–00249–1	.45
145	Repair Stations	SN 050–007–00220–3	.85
147	Aviation Maintenance Technician Schools	SN 050–007–00250–5	.65
	Legal Process and Pleadings	SN 050–007–00221–1	.50
151	Federal Aid to Airports	SN 050–007–00261–1	1.55
152	Airport Aid Program	SN 050–007–00323–4	1.35
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154	Acquisition of U.S. Land for Public Airports Under the Airports and Airway Act of 1970	SN 050–007–00269–6	.40
155	Release of Airport Property from Surplus Property Disposal Restrictions	SN 050–007–00270–0	.40
157	Notice of Construction, Alteration, Activation, and Deactivation of Airports	SN 050–007–00279–3	.40
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169	Expenditure of Federal Funds for Nonmilitary Airports or Air Navigational Facilities Thereon	SN 050–007–00280–7	.35
171	Non-Federal Navigation Facilities	SN 050–007–00281–5	1.10
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Change	Stock Number	Price
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2	SN 050–007–00372–2	.80
65–1	SN 050–007–00399–4	.80
67–1	SN 050–007–00341–2	.40
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101–	SN 050–007–00242–4	.50
105–1	SN 050–007–00344–7	.40
107–1	SN 050–007–00356–1	.40
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2	SN 050–007–00380–3	.90
3	SN 050–007–00389–7	.90
135–1	SN 050–007–00320–0	.35
2	SN 050–007–00321–8	.35
3	SN 050–007–00346–3	.45
4	SN 050–007–00366–8	.65
5	SN 050–007–00374–9	.90
6	SN 050–007–00378–1	1.50
7	SN 050–007–00397–8	.70
137–1	SN 050–007–00327–7	.35
2	SN 050–007–00337–4	.40
145–1	SN 050–007–00349–8	.40
147–1	SN 050–007–00350–1	.40
152–1	SN 050–007–00338–2	.40
2	SN 050–007–00342–1	.45
3	SN 050–007–00387–1	.70
4	SN 050–007–00396–0	.90
154–1	SN 050–007–00388–9	.70
159–1	SN 050–007–00330–7	.35
171–1	SN 050–007–00297–1	.65
183–1	SN 050–007–00352–8	.35
2	SN 050–007–00398–6	.70

[1] Add 25% for foreign handling.

[2] Due to their length, complexity, and frequency of issuance, individual Airworthiness Directives are published separately in the Federal Register. Copies of Airworthiness Directives that have been issued are for sale in summary form by DOT, FAA Aeronautical Center (consigned agent for Superintendent of Documents), P.O. Box 25461, Oklahoma City, Okla. 73125, Attn: AAC–23.

[3] Due to their length, complexity, and frequency of issuance, individual airspace designations, airways descriptions, restricted areas, jet route descriptions, and enroute IFR altitudes are not included in the publication of these basic Parts. Such descriptions are published in the Federal Register and depicted on appropriate aeronautical charts. Aeronautical charts can be obtained from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Distribution Division (C–44), National Ocean Survey, Riverdale, Maryland 20840.

[4] Standard instrument approach procedures are published in the Federal Register by reference to FAA documents which are available for examination in the Rules Dockets (AGC–24) and the National Flight Data Center, FAA Headquarters, Washington, D.C., and at the appropriate FAA Regional Offices and Flight Inspection District Offices. These approach procedures can be obtained from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Distribution Division (C–44), National Ocean Survey, Riverdale, Maryland 20804.

Airport and Aircraft Procedures
(Free Advisory Circulars)

Publications for Pilots (cont.)

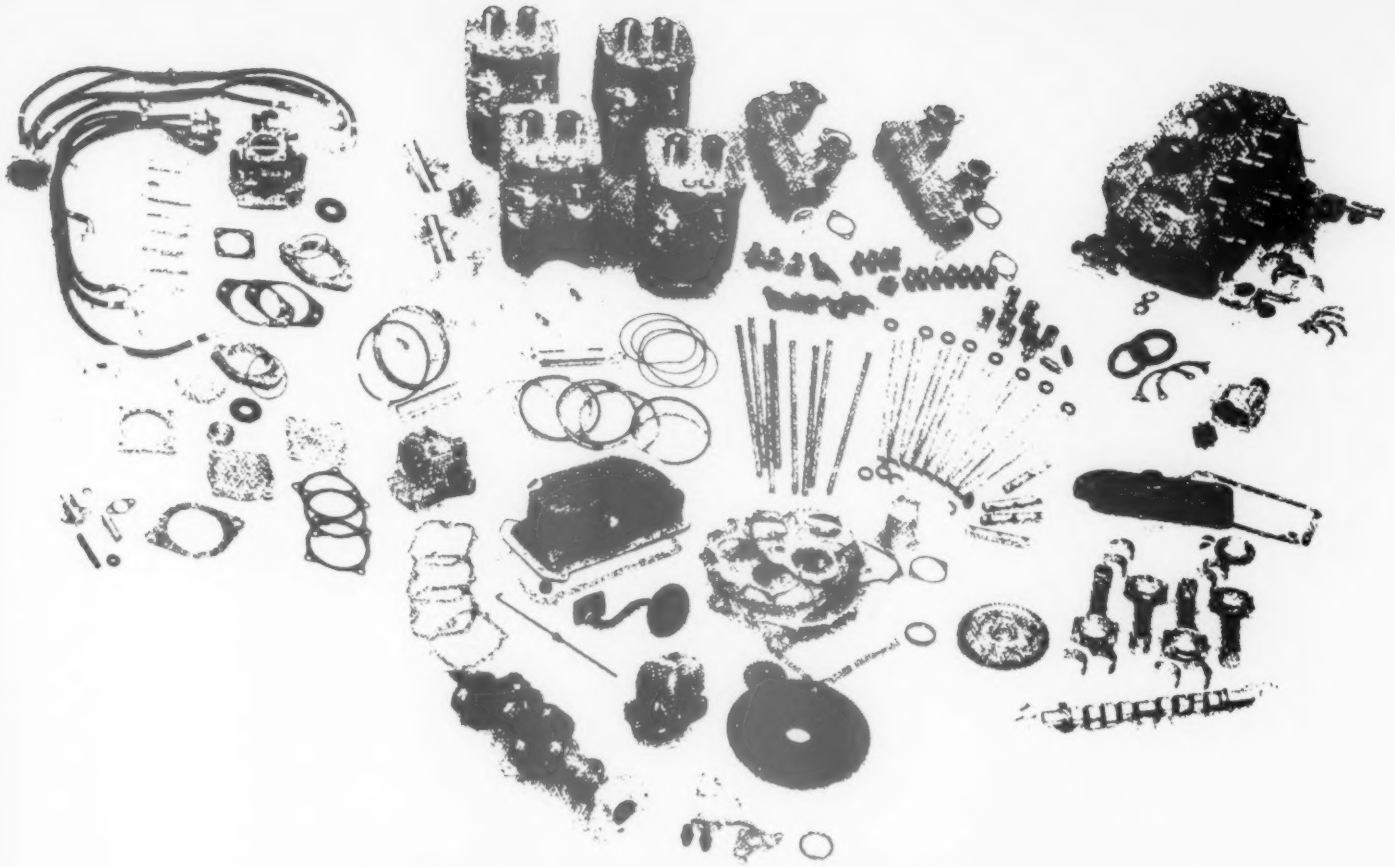
Advisory Circular	*Title*
	GENERAL
00–2KK	Advisory Circular Checklist.
00–25	Forming and Operating a Flying Club.
00–34A	Aircraft Ground Handling and Servicing.
00–46A	Aviation Safety Reporting Program.
00–50	Low Level Wind Shear.
	AIRCRAFT
20–5D	Plane Sense.
20–17B	Surplus Aircraft of the Armed Forces.
20–27B	Certification and Operation of Amateur-Built Aircraft.
20–28A	Nationally Advertised Construction Kits, Amateur Built Aircraft.
20–32B	Carbon Monoxide (CO) Contamination in Aircraft—Detection and Prevention.
20–36F	Index of Materials, Parts, and Appliances Certified Under the Technical Standard Order System—July 1, 1976.
20–43C	Aircraft Fuel Control.
20–73	Aircraft Ice Protection.
20–81	Accidental or Unauthorized Activation of Emergency Locator Transmitters (ELT).
20–85	Emergency Locator Transmitters and Receivers.
20–86	Aviation Education Through Building an Airplane.
21–13	Standard Airworthiness Certification of Surplus Military Aircraft and Aircraft Built from Spare and Surplus Parts.
33–2A	Aircraft Engine Type Certification Handbook.
43–4	Corrosion Control for Aircraft.
43–8	Maintaining Hot Air Balloons in an Airworthy Condition.
43–10	Mechanical Work Performed on U.S. and Canadian Registered Aircraft.
43–12	Preventive Maintenance.
47–1A	Aircraft Registration, Eligibility, Identification, and Activity Report.

Advisory Circular	*Title*
	AIRMEN
60–4	Pilot's Spatial Disorientation.
60–10	Recommended Safety Parameters for Operation of Hang Gliders.
60–15	Publication of New Written Test Study Guides.
61–1E	Aircraft Type Ratings.
61–50A	Airplane Flight Characteristics and Techniques Associated with Operation in the "Region of Reversed Command."
61–66	Annual Pilot in Command Proficiency Check.
67–1	Medical Information for Air Ambulance Operators.
	AIR TRAFFIC CONTROL AND GENERAL OPERATIONS
90–1A	Civil Use of U.S. Government Produced Instrument Approach Charts.
90–12B	Severe Weather Avoidance.
90–23D	Wake Turbulence.
90–42A	Traffic Advisory Practices at Non-Tower Airports.
90–62	Flying DME Arcs.
90–66	Recommended Standard Traffic Patterns for Airplane Operations at Uncontrolled Airports.
90–70	Straight-In Nonprecision Instrument Approach Procedures Visual Descent Point (VDP).
91–13A	Cold Weather Operation of Aircraft.
91–35	Noise, Hearing Damage, and Fatigue in General Aviation Pilots.
91–36A	VFR Flight Near Noise-Sensitive Areas.
91–37	Truth in Leasing.
91–39	Recommended Noise Abatement Takeoff and Departure Procedures for Civil Turbojet Powered Airplanes.
91–42A	Hazards of Rotating Propellers and Helicopter Rotor Blades.
91–45	Airshow Waivers.
107–1	Aviation Security—Airports.

Advisory Circular	*Title*
	AIR CARRIER AND COMMERCIAL OPERATORS AND HELICOPTERS
120–30A	Reporting Requirements of Air Carriers, Commercial Operators, Travel Clubs, and Air Taxi Operators of Large and Small Aircraft.
120–32	Air Transportation of Handicapped Persons.
121–18	Aviation Security—Carriage of Weapons and Escorted Persons.
121–21	Information Guide for Training Programs and Manual Requirements in the Air Transportation of Hazardous Materials.
135–1B	Air Taxi Aircraft Weight and Balance Control.
135–3A	Air Taxi Operators and Commercial Operators of Small Aircraft.
135–4A	Aviation Security: Air Taxi Commercial Operators (ATCO).
137–1	Agricultural Aircraft Operations.
	AIRPORTS
150/5200–11	Airport Terminals and the Physically Handicapped.
150/5200–23	Airport Snow and Ice Control.
150/5240–7	A Fuel/Energy Conservation Guide for Airport Operators.
150/5300–4B	Utility Airports—Air Access to National Transportation, with Change 1.
150/5320–6B	Airport Pavement Design and Evaluation, with Change 1.
150/5340–24	Runway and Taxiway Edge Lighting System.
150/5340–25	Visual Approach Slope Indicators (VASI) Systems.
150/5345–1E	Approved Airport Lighting Equipment.
150/5360–6	Airport Terminal Building Develment with Federal Participation.
	FLIGHT INFORMATION
210–1A	National Notice to Airmen System.

Free Advisory Circulars are available from DOT, Publications Section, TAD-443.1, Washington, DC 20590. Identify by AC number.

Those persons who wish to be placed on FAA's mailing list for future circulars should write to: DOT Distribution Requirements Section, TAD-482.3, Washington, DC 20590. Be sure to identify the title and subject number of each series requested (example: 60—airmen).



The Turn of the Screw

Post-surgical care for engines

The pleasure of finally getting your aircraft back from the shop was soured somewhat by the size of the figure on the bottom line of your bill—wait until the wife finds out about that—*as undoubtedly she will. But after adding up all the items on your pocket computer, and reflecting that you have known the shop owner for years and he is not the kind of guy who would perform unnecessary maintenance on your plane, when it just went in for a minor engine tune-up, you feel better about it. At least you are sure that the engine is not going to let you down when you are carrying your family off to weekend vacations in the country. You called them up, invited them out for a little impromptu spin, and headed for the hills to look over the new-fallen snow. Ten minutes later you were back with a stuttering engine; you landed hard and almost short, scaring the life out of everyone on board, and the first thing you did was charge over to the maintenance shop shaking your fist:*

"WHAT KIND OF #*&% IDIOTS DO YOU HAVE WORKING HERE?"

The fact is, even if the shop has the best mechanics in the world, an occasional error is possible. Presidents make mistakes; doctors make mistakes, lawyers make mistakes (even pilots sometimes make mistakes). And so do mechanics. Aviation maintenance, as regulated by FAA, provides every reasonable kind of safeguard to assure a uniformly high standard of workmanship on aircraft, and this is normally what you may expect. But mechanics are human, and no human being is infallible. This is an important fact to remember, even if you happen to be an exception yourself.

Every year at least a hundred pilots have an experience like the one related above—sometimes with much more serious consequences. When you consider there are an estimated 50,000 aviation mechanics in this country, who perform *millions* of hours of maintenance work every year, the relatively few cases of engine-failure accidents related to maintenance is understandable. But from the pilot's point of view, it is still significant.

A great deal of maintenance is performed by mechanics who are not FAA-certificated, but who work under the supervision of a certificate holder. Once in a while something is done wrong, or omitted. More likely, a problem may result from a misunderstanding between the aircraft owner and the shop as to the extent of service that is required, or performed. And every now and then a reliable mechanic may, as a result of working long hours, or not feeling well, or being beset with personal problems, just plain goof.

A goof of this kind led to the premature demise of a Cessna 150 last summer, following an annual inspection. The aircraft, hangared in Grand Rapids, Mich., required only minor repairs and servicing during the inspection and was returned to service by the pilot/owner the next day. During his preflight check, the pilot noticed a small puddle of fresh oil about three inches in diameter on the pavement under the engine. Assuming this was dripping from spillage that had occurred when the oil was changed, he gave it no further thought. All panel instruments read normal during the runup and takeoff. But half an hour later, as he was flying north toward the Upper Penin-

The sum of the parts is many when it comes to airplane engines. Some have over 1,000 individual pieces. Engine at left is a four-cylinder Lycoming, disassembled and cleaned for inspection and replacement of all worn parts.

sula, the pilot discovered he was losing oil pressure, shut down the engine and attempted an emergency landing in a small meadow surrounded by trees. The aircraft overran the clearing and was brought to a stop by a thicket of pines, resulting in extensive damage and some minor injuries to the pilot.

The investigation conducted by the FAA disclosed no mechanical deficiency other than the absence of a drain plug from the crankcase. There was also no sign of the safety wire which is used to secure the plug. Since the pilot was certain that he had normal oil pressure after start-up, it was assumed that the oil plug had worked its way loose during the flight.

Questioned by investigators, the mechanic who had changed the oil said that he knew about the requirement for safety-wiring the oil plug, and that he felt certain he had done so, but he could not actually remember at what point he had performed this function. He acknowledged that he had been interrupted during the final servicing of the 150 by several urgent telephone calls from home, and he remembered that during one phone conversation he had laid the wire down on the desk. He thought that he picked it up later and put it in place. But if he had done so, the plug could hardly have worked loose in the first half hour of flight.

For lack of a wire a plane was lost—and a life endangered. The facts are disturbing, despite the statistical odds against it happening to you, until you realize that this accident was *entirely preventable by the pilot or owner.*

Item: if the oil plug was loose enough to work its way out, probably oil was leaking past it, which could have been observed during a careful preflight inspection.

In this case the pilot admitted that his preflight check of the engine had been "somewhat sketchy." *After all, the aircraft was fresh out of the shop where it had been gone over by trained mechanics. The last thing you'd expect was a loose drain plug.*

In other words, his guard was down. Because of his longstanding experience with this shop, he saw no need to look over (or under) the engine before taking off. It is just this attitude that allows the rare mechanic's mistake to be compounded into a serious accident. Veteran pilots usually know better than to allow confidence in a shop, or friendship with a mechanic, to displace their habitual attention to preflight details. They know that sooner or later someone will make a mistake when working on an engine, and they do not want to be victimized by that error.

In fact, many aircraft owners prefer to have their plane test-flown by the shop (or with the mechanic on board) before being returned to service, and quite a few shops offer this option. It adds to the bill, but it is good insurance. Most maintenance-related problems will show up in the first 15 to 20 minutes of flight, and recognizing them often takes specific skill and experience; reasoning alone will not suffice.

A rancher pilot in New Mexico who attempted to figure out what was wrong with his engine on his own, after it failed to run perfectly following a major overhaul, paid for his error with his life. The airplane, a single-engine Piper *Comanche*, was repaired at a distant facility. After he flew it home to his ranch he found that he was not always getting a full 2,700 rpm on takeoff. Theorizing that something was wrong with the propeller governor, he took the plane to a nearby propeller shop for a check.

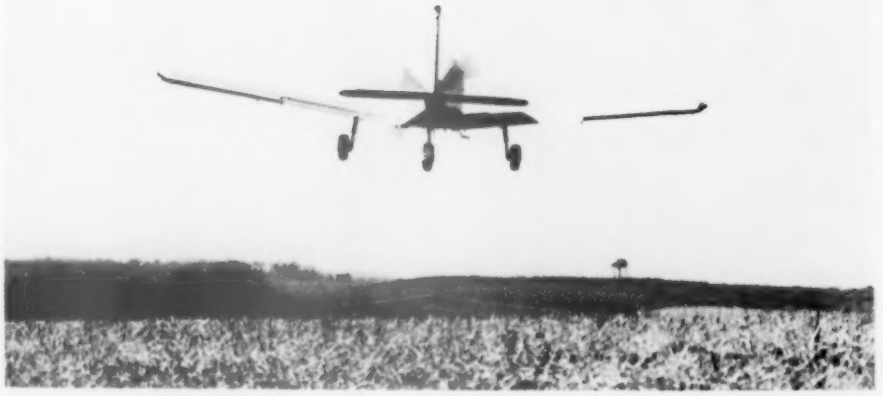
The propeller checked out normally, but the problem persisted until one day, on takeoff, the engine malfunctioned at an altitude of 150 feet, resulting in a fatal crash.

During the NTSB investigation no possible cause for the failure was found until a small steel screw was discovered at large in the combustion chamber of the No. 1 cylinder. Investigators believed that the screw had entered the chamber either during or shortly after the engine overhaul. They theorized that the screw had either been overlooked and left in the chamber, or had dropped out of someone's pocket, or possibly had worked loose from some other installation and had gained entry into the chamber by way of a valve orifice. In any event, the screw had bounced around inside the cylinder, battering the sparkplug electrodes until the gap was closed.

Granted that this is a fluke occurrence, which even the most experienced technician could not have diagnosed without careful

testing and eventual exposure of the cylinder, it shows nevertheless how easily a pilot may be misled by his own theorizing. Given the substandard performance of the engine after the overhaul, the pilot had only one safe recourse: leave the airplane on the ground until a competent mechanic (if necessary flown in from the shop that did the repair) could examine it and determine what should be done. This would have cost him use of the aircraft for quite some time, but it would have spared his life.

Guesswork can cost you dearly because the modern aircraft engine is a very sophisticated piece of machinery with literally hundreds of individual parts, most of which are subject to wear, abuse and/or misplacement. During a major overhaul all of these parts are dissembled or exposed. They must be examined, in some cases tested, cleaned, possibly replaced and reassembled. During this process the inner parts of the engine are almost as sensitive to contamination as the exposed organs of a human body. Dust, grit, and moisture are the chief contaminates. Great care, knowledge, and orderliness of procedure are required to get all of the parts back together in proper working condition.



The UNhappy landing: no power and no airport—and you just had the engine overhauled. Murphy's Law: on any given day, any given part can be mis-installed. Be on guard.

But once in a while a part goes where it does not belong, or is lost or damaged inadvertently, or is not secured, torqued or safetied in the proper manner. The error may show up before the engine is released from the shop—or it may not. The mechanic *approves* the aircraft for return to service, but it is the owner or operator who *returns* it to service—and under regulations (FAR 91, Subpart C) he may not do so if there is any indication that the aircraft appears less than airworthy.

Some owners are naive enough to assume that the more money they pay for an overhaul, the less likely they are to have any problems with the engine once the plane is flying again. In a sense this is true; if the engine had many parts in poor condition, replacing them improves the reliability of the aircraft. But in another sense, the more extensive the repair job, the greater the possibility of human error occurring—and the more cautious the pilot who first flies the repaired plane should be.

The preflight check following repair work should be carried out slowly and painstakingly, with all accessible parts of the engine eyeballed or felt. Even the least knowledgeable person, as regards engines, can observe the obvious, such as unconnected wires, loose parts, physical damage, discoloration, leakage, unusual sounds, etc. The engine instruments should be monitored with special care during the first runup and inflight —with the first flights restricted to local flying within range of emergency landing areas. The pilot should be on guard against falling into the attitude of wishful belief that no one would do anything wrong to *his* engine. Aircraft have been approved for return to service with an unbelievable variety of foreign objects closed up inside—everything from ashtrays to Xeroxed plans.

Forgetting to tighten some of the sparkplugs or to fully connect the ignition harness is one of the classic errors that occasionally haunts the maintenance shop. Because of the dual ignition system of piston driven aircraft, the pilot may manage to be well on his way to his destination before the problem surfaces, when a loosened plug is blasted against the cowling, and the engine begins to shake itself apart.

Or, trouble may come early in the flight, as it did for the pilot of a twin Beech being operated by two brothers as an air taxi in northern Illinois. The aircraft had been in the shop for a 100 hour inspection for several days when the pilot asked his brother, who was their chief mechanic, how soon the plane would be ready for service. The mechanic said it would be ready as soon as he finished putting in new spark plugs and buttoning down the cowling. It was then only about 2:30 p.m.; he expected to have it done before his quitting time (4:00 p.m.).

Just after four the pilot received a call from a client who asked if he had a plane available for a quick flight to Milwaukee. "Just a minute," he said, "I'll look and see." He looked out his window and saw the Beech parked on the ramp outside the shop, the cowling buttoned down and apparently ready for action. He booked the flight.

By the time the paperwork was ready and the plane fueled, the client had arrived at the terminal and was eager to depart; he wanted to conclude some business in Milwaukee before nightfall. The pilot walked around the plane, performed his runup and took off. The twin Beech was about 200 feet above the ground when both engines stopped dead, and only very adroit work in the cockpit avoided a bad smashup. When an FAA inspector, investigating the accident for NTSB, arrived on the scene and opened the cowling of the right hand engine his jaw dropped in surprise. Half of the 12 sparkplugs of the engine had blown out. A similar sight greeted him when he looked at the other engine.

The mechanic who had worked on the airplane had a very reasonable story to tell. He had moved the Beech outside on the ramp to finish his job, since the light outdoors was better, but then he received a phone call from his wife, asking him to come home early because she was not feeling well. Not wanting to expose the cylinders to dampness by leaving the sparkplug holes open, he had inserted a plug in each opening and given it a couple of turns. To protect the plug leads, he had slipped the connectors of the ignition harness in place. As a further protection against the chance of rain, he had closed up the cowling. The chief pilot, knowing his brother's reliability, had not bothered to look under the cowling when he started up the aircraft. The engine ran fine at 1800 rpm, but at full power for takeoff the plugs had blown out, one after another.

This was a case not of faulty or careless maintenance, but simply of work not yet completed—which the chief pilot would have realized if he had taken time to look under the cowling, or at the service log, instead of jumping to a conclusion.

Which goes to show you that where engine repairs are concerned, you should never trust anyone blindly.

Not even your own brother.

Famous
FLYERS

Bob Reeve and the First Glacier Landing

Robert Reeve and his Fairchild—from the mud flats of Valdez to the glacial glory holes.

On Christmas Day in 1932 miners in the camps around Valdez were looking forward to a festive meal for the first time in many years, thanks to the daredevil zeal of a checkako bush pilot named Bob Reeve. The mountain slopes surrounding the gold camps were heavily encrusted with snow and ice, but Reeve had promised to deliver the holiday goods, even if St. Nick found the wintry terrain too inhospitable.

Reeve had turned up in Alaska six months earlier with a logbook showing thousands of flight hours, and 20 cents in his pocket. He had been knocking around the world ever since he left his home town, Waunakee, Wisc., in 1917—as a soldier, sailor, mechanic and pilot. In the late 1920s he was flying international mail from the States to Chile, over 1900 miles each way in a single-engine Fairchild 51.

Flying alone without instruments over the desolate plateaus and peaks of South America, in all kinds of weather and in darkness, Reeve developed his own survival tactics, plus a supreme confidence in his ability to fly where no one else would fly.

He also concluded that there was no real future for him in aviation unless he could find a new frontier to conquer and become his own boss. Stories about great opportunities for bush pilots to make their own way in Alaska with a shoestring start led him to Valdez in 1932.

Valdez was then a hamlet of some 400 hardy souls, perched on the southern base of the Chugach Mountains. The all-year ice free harbor did little to support the economy, because the rich gold fields were on the other side of a lofty ring of glacier covered mountains. Backpacking, horses and dogsleds were the only means of supply, which made the cost of producing ore nearly prohibitive.

But Valdez did have an airstrip, handhewn out of a scrubby flat, and one aircraft —a venerable, smashed-up *Eaglerock* (a three-seater biplane with an open cockpit). Reeve, who just happened to have an A & P certificate, repaired the plane, equipped it with skis, and leased it. The Bob Reeve Air Service was born.

Within a year Reeve had made a name for himself as a pilot who would fly anyone, or anything, anywhere in Alaska—for a price. Miners, prospectors, peddlers, hunters, tourists, even "shady ladies" sought out his services in increasing numbers, as his reputation grew as the man who would "fly anyplace you'll ride." Within six months he was able to buy his own plane, his favored Fairchild 51, a highwing monoplane whose enclosed cockpit offered him much needed protection from the biting winter winds.

His first real challenge was supplying Jack Cook's "Big Four" mine, only 30 miles north of Valdez but on the fearsome Brevier Glacier at the 6,000′ level. The current overland freight rate was 30 to 35 cents a pound. Reeve's bid of 5 cents a pound was snapped up. Now all he had to do was to figure out how to land on the crevasse-riddled glacier.

The only possible landing area near the mine was a cup-shaped shelf of snow and ice about 100′ wide and 500′ long, lying at a 25° incline, with a curled ridge at the back and a sharp dropoff at the front. The Fairchild landed at a slow 60 mph, so Bob had no doubts about getting in. He approached the slope in a steep climb at full throttle and cut the power as soon as he was over the ledge. The upward slope and the curved wall beyond served as a natural braking force.

Taking off, downwind, was another matter. On the slippery snow and ice surface, ground looping was the major threat, since Bob reckoned he would need a groundspeed of about 100 mph in order to lift off safely with a full load. He solved the problem by enlarging his tail skid and using it to dig into the snow and prevent the tail from swinging around. He flagged the area, packed it down on foot, and took off. Bingo —he was in business!

Within the first week of operating he hauled in over 40,000 lbs. of equipment, including the complete milling unit. Within a month he had completed 60 flights, had landed nearly 30 tons of supplies and hauled in an entire mine building, nail by nail, board by board.

His success at the Big Four brought other mine owners knocking at his door. Business mushroomed. Each contract was a new challenge, involving a different terrain and flying problem. The first landing was always a question mark, the first takeoff an agony of anticipation. The surface was sometimes stony-hard, sometimes crusted, sometimes so soft as to seem weightless. You had to learn by doing, and you had to do it right the first time. There were times after a particularly dicey landing that Reeve would sit quivering in the cockpit for several minutes before he could bring himself to climb out. Time and again he would take an airplane in where no one else would dare, and always he came back.

Reeve carried everything from dog biscuits to steel drums. Radio parts and batteries were prized by miners who had no other contact with the outside world. Mail,

dried fruit, potatoes, dehydrated soups, snuff and tobacco were all eagerly awaited. And fresh fruit—"A crate of peaches wouldn't last a day."

When the snow melted, he changed from skis to wheels, dropping supplies where he could no longer land. He took the door off of his Fairchild and carried a boy helper to push out the supplies. (One of his helpers, Bill Egan, became Governor of Alaska.)

In the Thanksgiving and Christmas season, Bob's plane was loaded with turkeys for air delivery to dozens of mining camps and lone prospectors. Morale rose, production climbed and Valdez enjoyed a new wave of prosperity.

For Reeve the glacier pilot, the ultimate challenge came when he agreed to land a party of scientists on Walsh Glacier in June, at an altitude of 8,500 feet. The landing was accomplished, but the snow was so soft that the Fairchild sank down on its belly. With warmer weather expected, Bob had to get off the glacier soon or he would be stuck there for months. To lighten the plane he threw out everything that could be detached, including his tools and sleeping bags. Then he flattened the propeller to develop maximum horsepower and jumped into the cockpit:

"I gave it the gun and off I went. But by God, I hadn't gone a hundred feet when smack!—down into a crevasse. I climbed right out and kept on going. Then flop—down into another and I lost the airspeed I'd gained. Bumpety-bump, it was like driving over a plowed road. I realized I wasn't getting anywhere . . . I'd already run a mile or more and ahead of me I could see the big crevasses—wide enough to hold a boxcar. If I hit them I was a goner. Then I happened to spot an icefall at my left, sheering off the side—maybe a 250 foot drop. It was my last chance. I mushed straight for the bottom and I thought maybe I was a goner after all. But the plane picked up just enough forward speed on the jump-over to get airborne. I leveled out about ten feet from the bottom. That was the greatest feeling of my life—bar none!"

Now a married man, Bob gave up glacier flying to pursue his dream of his own airline. The onset of World War II and the basing of U.S. military forces in the Aleutian Islands, with its constant demand for supplies, gave him a new opportunity to pioneer. After the war he built up a flourishing freight and carrier service to the Aleutians, and today Reeve Aleutian Airways has 200 employes based in Anchorage, eight airplanes (including an *Electra*), and 30 pilots ". . . half of them have been with us 15 to 30 years."

Still vigorous and active at 75, President Bob looks back with satisfaction on his climb to prominence as a premier bush pilot, and his motto:

"To eat regular, you gotta fly where no one else will go."

BRIEFS

MORE ON AIRCRAFT RECORDS. Most airplane owners and mechanics are well aware of the importance of making a complete record of any work done under the terms of an Airworthiness Directive (AD). There may, however, be some who do not realize the importance of keeping similar detailed records of compliance with manufacturer's service letters and service bulletins. Occasionally such work is included with an annual or 100-hour inspection, and the mechanic signs off without detailing the work done or without including number of service letter or bulletin. Flaw in this procedure is that some maintenance facilities discard records after a given period. Then if the service bulletin or letter later becomes an AD note (whose accomplishment must be documented) determining compliance could be an involved and expensive task.

AUTUMN CLEANUP TIME. Having a "cleanup party" for your airplane is just as important in the fall—as flying activities begin to slack off—as it is in the springtime, when the busy season is starting. Cleaning, waxing and inspecting (with prudent service where indicated) before cold weather sets in, helps your aircraft weather the winter: Most moving parts are less apt to rust with disuse if they are well-oiled (not all hinges should be oiled; check manufacturers' instructions); waxed surfaces resist penetration of snow and ice; properly inflated tires are less prone to deterioration while inactive, or during the occasional flight that some craft get during the winter months; batteries fare better if electrolyte levels are maintained, etc. Of course if the aircraft is not to be flown at all during the winter months, it should be properly, and professionally, prepared for dead storage.

IFR RESERVATIONS AT BUSY AIRPORTS. Every pilot who flies into Kennedy, La Guardia, O'Hare or Washington National Airport should obtain a copy of an updated FAA advisory circular that discusses the "operations reservations" that are needed for IFR landings or takeoffs at these airports. The purpose of the reservations system is to reduce congestion. Reservations are issued for a given hour on a first-come-first-served basis, and can be requested two days in advance, either from a flight service station or by phoning the Airport Reservations Office, as follows: From Washington, D.C., (202) 426-8920; From New York, (212) 656-4177; From Chicago, (312) 372-5215. Advance reservations are not required for VFR operations. However, there may be times when one of these airports is not authorizing VFR operations, in which case ATIS will carry the announcement and a NOTAM will be issued. For complete information on the subject, write for "Operations Reservations for High-Density Traffic Airports" (AC-90-43D), which is free from the address listed elsewhere in this column.

Advisory Circulars mentioned in this column, unless otherwise noted, are available free from DOT/FAA Publications Section, TAD-443.1, Washington, D.C. 20590.

MATCHED PAIR OF PILOTS. Mary Bush-Lowman flew co-pilot for her husband, veteran Captain John Lowman, on her first regular flight after becoming a DC-9 jet first officer for Hughes Airwest. "The captain is the boss in the airplane," said Bush-Lowman referring to the disciplined professional relationship of an airline flight crew "even if he happens to be my husband." The 28-year-old co-pilot had previously served as first officer on smaller prop-jet aircraft. Only one other U.S. airline (North Central) has a female first officer flying jets. Special arrangements were made for the one-time Mr. and Mrs. flight crew.

FAR 135 Proposal for Transport Airplanes Withdrawn

The FAA has withdrawn a controversial part of a recently proposed rule change that would have required propellor or turboprop airplanes with ten or more passenger seats to be certificated under transport category (Part 25) if they are to be used in commercial, air taxi or commuter operations under FAR Part 135, after specified dates.

Present rules allow such operations with airplanes that are certificated under the less stringent "normal" category requirements of FAR Part 23, and some 300 airplanes thus certificated that are now in commercial use would have been affected.

Early comments voiced opposition on the grounds that many of the airplanes now in use could not be practically modified to meet the proposed standards. In withdrawing the proposal FAA agreed that "the proposed new Part 135.141(e) would, if adopted, impose an unreasonable burden on a significant part of the aviation industry."

Along with the withdrawal notice, FAA also issued a request for public comments on what alternate rule changes (if any) the agency should make regarding airworthiness standards for airplanes of the kind generally used as commuters. Specifically, FAA wants answers to such questions as: *Should a date be set after which newly manufactured airplanes of this kind would need transport category certification for Part 135 operation? If so, when?*

What economic impact would such action have on operators, manufacturers and passengers?

Should FAA develop a new airworthiness certification category for commuter type aircraft? What standards should be used?

Comments on Notice 77-25 should be sent, in duplicate, to FAA, AGC-24, Docket #17325, Washington, D.C. 20591 by January 25, 1978.

Engine Review Conference

The FAA regulatory review conference on aircraft engines will be held January 16-20 at the Hyatt House Hotel at Los Angeles International Airport. The conference is aimed at updating the airworthiness regulations for engines to reflect recent service experience and the current state of the art. Some 134 proposed rule changes have been received from engine manufacturers, aviation organizations, FAA and others.

Copies of the agenda and the list of proposals are being sent to those who submitted proposals or who expressed interest in the conference. Others can get copies by writing AFS-910, Federal Aviation Administration, Washington, D.C. 20591.

New Rule on Aircraft Leases

A new FAA rule calls for anyone leasing a large U.S. civil aircraft to notify the nearest FAA Flight Standards office by telephone or in person at least 48 hours prior to the scheduled first flight of that aircraft under the lease agreement. The new requirement will allow FAA safety inspectors time to conduct preflight surveillance or inspections as necessary to ensure the level of safety intended by the "truth in leasing" rule. Old rules required only that a copy of the lease be mailed to FAA within 24 hours of its execution.

Need for Mexico, Canada Flight Plans Questioned

FAA is proposing to rescind the requirement that pilots file flight plans for operations between the United States and Canada or Mexico. In a Notice of Proposed Rulemaking, FAA noted that compliance with the existing regulation often requires pilots to fly many miles out of their way to file or close flight plans, especially along parts of the Canadian border. This has been not only an inconvenience but has also been wasteful of fuel.

The flight plan requirement was adopted in 1973 as part of a concerted federal campaign against narcotics smuggling. Subsequent experience, however, has shown that the regulation was largely duplicated by other anti-smuggling regulations and could be rescinded without adversely affecting efforts to stem the illegal drug trade.

The proposed action would not affect U.S. Customs requirements which require pilots entering the United States to (stopping first at a Port of Entry airport for a Customs inspection, etc.). Neither would the rule change affect the requirements for flight plans by pilots flying into or through Air Defense Identification Zones or by those operating under Instrument Flight Rules.

Comments on the NPRM (77-21) should be submitted in duplicate to FAA, AGC-24, Washington, D.C. 20591 by January 3, 1978.

Examiner Standardization

The FAA examiner standardization team is now at work finalizing a new program of "Examiner Standardization" courses, designed to reach—on a regular basis—all persons who administer pilot flight tests, including 1,500 designated pilot examiners.

The new courses are designed to standardize airmen certification, which will provide obvious safety benefits. In addition, the pilot examiner force will be assisted in preparing for a possibly expanded future role.

The first of the new courses is scheduled to be conducted at the Oklahoma City GADO in January 1978. Examiners will be notified individually.

Low Cost MLS Demonstrated

The proposed United States Microwave Landing System (MLS), in a low-cost version specifically designed for use at small community airports, was demonstrated recently at Cape May County Airport, N.J. with a DHC-6 *Twin Otter* flying the approach. The "small community MLS" as the low-cost version is called, is a simple, basic version of the bigger microwave approach and landing guidance system which was developed by the United States and which will be presented to the International Congress of Aviation Organizations (ICAO) next April for consideration as a worldwide system.

• Operation Raincheck in Cleveland

Would you please tell your midwest readers about the "Operation Raincheck" courses that are being offered at the Cleveland Air Route Traffic Control Center in Oberlin, Ohio? The course, which is designed to familiarize pilots with principles of air traffic control, is primarily for instrument pilots, but licensed VFR pilots are accepted if they are working on their instrument rating or plan to do so. We cover such items as: Why positive control? How does a transponder help the pilot? Why can't I have the altitude I requested? and many other subjects, including a chance to sit with controllers and observe actual instrument control.

Each course consists of three consecutive evening sessions—Tuesday, Wednesday and Thursday—from 6:00 p.m. to 10:30 p.m. For pilots who wish to fly in, ground transportation will be provided (by prior arrangement) from Lorain County Regional Airport. Courses are held weekly, but all classes are filled through the month of December.

For further information or application forms, write "Operation Raincheck", Cleveland ARTCC, 325 E. Lorain St., Oberlin, Ohio, 44074.

John R. Ryan, Chief
Cleveland Center

• Overlake Radio Reporting

You have a great magazine. Keep up the good work. Your article "Survival at Sea" in June was informative, but it placed an extraordinary emphasis on protection against sharks. As a pilot who regularly flies over the Great Lakes, survival at sea involves many considerations other than danger due to sharks.

How about an article on "overlake radio reporting", proper ditching methods, protection against exposure, and appropriate safety equipment?

Matthew P. Houseal
Ann Arbor, Mich.

We have published several such articles in the past. See "Lake Reporting Service" (August, 1973) and "Isles of Tranquility" (August 1974) "Island Hopping" (September and November, 1974) "Blown Out to Sea" (March 1974) "Down to the Sea" (August 1972) and "Wet Landings" (October 1972).

An updated article on this subject is planned for next spring. We would like to hear of any firsthand pilot emergencies over fresh water.

• Confessions of a Perfect Pilot

You undoubtedly receive many complaints. I thought you might like a compliment. While working toward my private pilot license I got slightly off course between Newport News and Lynchburg, Virginia, while I was on my required long cross-country flight. Remembering my instructor's advice to "confess and communicate" I called the Lynchburg FAA on my radio and explained my problem. Without delay I was vectored to the nearest airport (Farmville) to refuel and then went on to Lynchburg with no problem. There was no need to declare an emergency.

I hear so much criticism of FAA regulations and personnel but I have only admiration for your organization and the people who staff it. Of course an FAA man or woman—being human—may have a bad day and be a bit brusque. As a retired Army Sgt. Major I am perfect, but I realize not everyone is! Thanks to all of you for making my transition from groundling to airman easier.

Russ Haight
Woodbridge, Va.

• In Favor of Contacts

In your June 1977 "Flight Forum" you expressed an interest in hearing about any problems resulting from pilots wearing contact lenses. I have been flying since 1968 and until three years ago I wore glasses at all times. Since then I have been wearing contact lenses, after obtaining a waiver under the "old" rule. I can state unequivocally that the use of contact lenses has been an aid, rather than a hindrance.

Contact lenses don't steam up; slip down off the nose; strike the cabin wall when turning the head; or smudge during normal usage. The increase in peripheral vision alone is a tremendous advantage. I have never had any lens problem while flying, but I'm confident that if I were to get something in my eye, my ability to proceed would be no different than if I had glasses on.

James A. Aiello
San Carlos, Calif.

• Hot Magnetos

Please clarify your June 1977 article which calls attention to the problems of "hot" magnetos and instructs pilots as follows: "Release the switch (after turning through the "off" position). It should spring back directly to the "Off" position and the engine should not run."

This implies that if *either* provision occurs, the switch is defective and should be replaced. Not so! The switch is bad *only* when both provisions occur—i.e. switch doesn't spring back *and* the engine continues to run. (As long as the engine stops on demand, you have no problem). This paragraph is leading to disagreements between airplane owners and maintenance personnel. Please help straighten this out.

Lynne D. Covalt
Lubbock, Texas

We recommend that if, during a routine pilot inspection, the switch performance deviates from normal in any way, it is time to consult with a qualified mechanic. The engine may shut off the first time the switch fails to spring back in place, but perhaps not on the second or third time. "Loaded" props are just too dangerous a risk.

FAA GENERAL AVIATION NEWS welcomes comments from our readers. No anonymous letters will be used, but names will be withheld on request. Address: FAA GENERAL AVIATION NEWS, AFS-807, Washington, D.C. 20591.

• More Travel Articles, Please

The Canadian article in your July issue was excellent and complete with information. We recently returned from a flight to Nome, Alaska. Before we left we spent considerable time and effort in accumulating the information that you neatly put into one article.

We would very much like to see articles on flying into Newfoundland, and into Mexico—Baja California in particular. Each of these areas has weather and regulations that require special attention.

E. L. Sheffler
Columbia, Tenn.

An article on U.S. flights to the Canadian Interior is planned for next spring. See April 1976 for "Flying South of the Border."

INSTRUMENT CORNER

• Practice Approaches

I have been unable to obtain a satisfactory answers to two questions concerning instrument flight. Can you help?

First, can a non-instrument rated private pilot request from ATC and execute a practice simulated instrument approach in VFR conditions when accompanied by a non-instrument rated private pilot who is qualified in the aircraft?

Second, regarding the pilot-in-command recent flights experience requirements of FAR 61.57 (e)(1)(i), must any (or all) of the six instrument approaches required, within the preceding six months, be made in either actual or simulated instrument conditions? In other words, would the execution of an instrument approach in VFR conditions with no hood or safety pilot be creditable toward the required number of approaches?

Kenneth G. Gerachty
Woodside, N. Y.

As a pilot who is not instrument rated you may make practice instrument approaches under the following conditions: Be sure to state "practice" when requesting the approach from air traffic control. You will be instructed to maintain VFR conditions along with the approach clearance. No instrument rating is required to the safety pilot when conducting these practice approaches, since no portion of the clearance is under instrument flight rules.

In answer to the second question, the required instrument approaches must be made under actual or simulated instrument flight conditions. If simulated, a hood or some other effective view-limiting device must be used, and a safety pilot must occupy the other control seat. An instrument approach procedures executed in VFR conditions without simulating instrument conditions would not serve the currency requirement.

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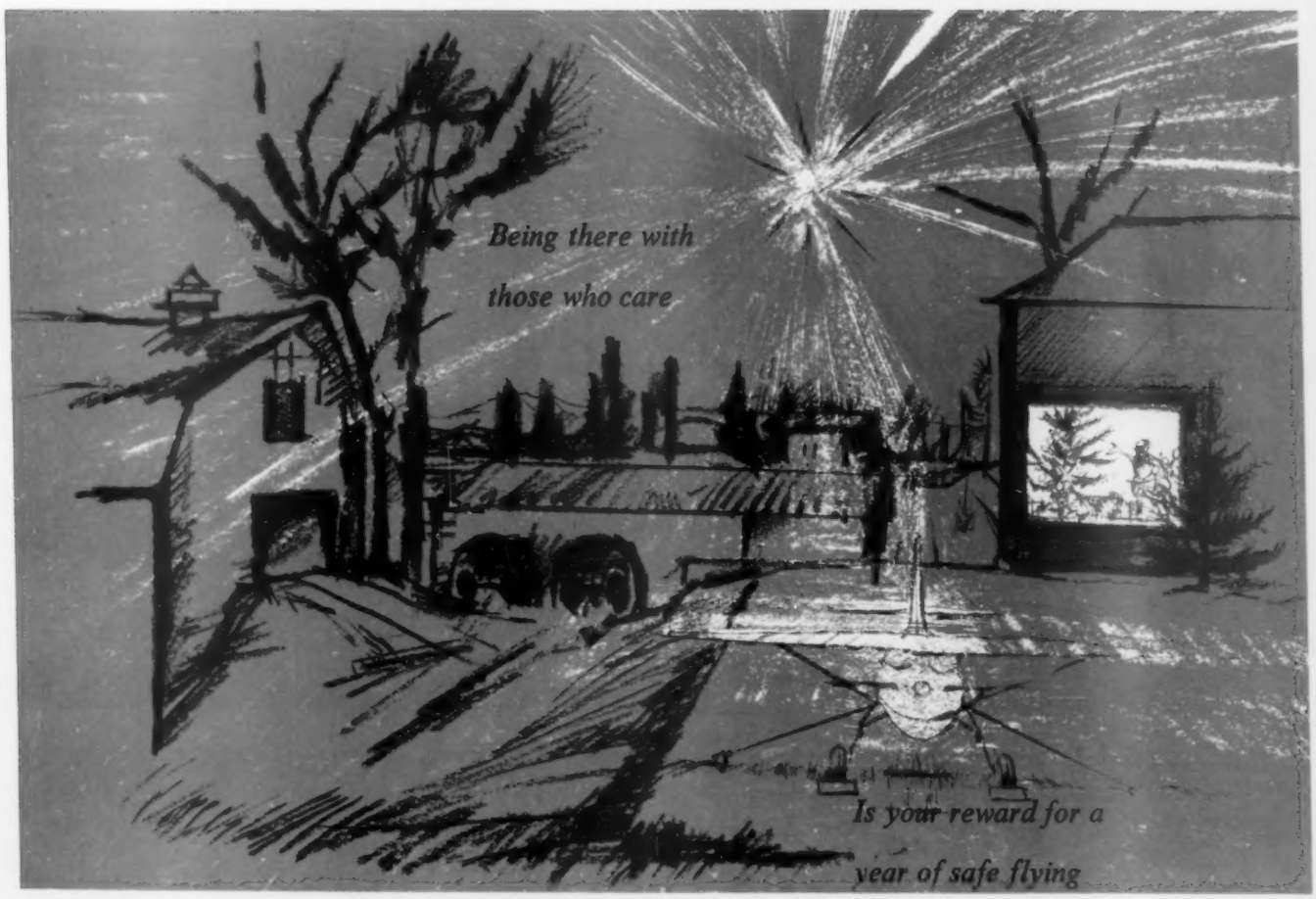
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